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THE DEMAND AND PRICE SITUATION FOR FOREST PRODUCTS

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U. S. DEPARTMENT OF AGRICULTURE
November 1956

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Foreword

This report was prepared as background information for the Outlook Conference held by the U. S. Department of Agriculture in November 1956. The analysis of timber products was prepared by the Division of Forest Economics Research, Forest Service, and the analysis of naval stores by the Tobacco Division, Commodity Stabilization Service.

The brief analysis of the outlook for 1975 is based on assumptions concerning population trends, Gross National Product and other related factors contained in a report "Timber Resource Review", published by the Forest Service, U. S. Department of Agriculture in September 1955.

Somewhat more detailed information on past production, consumption and price trends is contained in the "Demand and Price Situation for Forest Products, 1956" published in November 1955.

Outlook Summary

Lumber

Lumber consumption during 1956 is expected to total about 40.5 billion board feet. This is about 3 percent below the estimated level of consumption in 1955 but about the same as the average during the last few years.

Lumber production in the United States during 1956 is estimated at about 38 billion board feet, including 30.6 billion board feet of softwoods and 7.4 billion board feet of hardwoods. This is 4 percent less than estimated production in 1955 but slightly above the average level during the last 5 years. The West is expected to produce about half of the lumber cut, the South 35 percent and the North 15 percent.

Imports of lumber during the first half of 1956 have been lower than in the corresponding period in 1955, and for the year may amount to about 3.3 billion board feet. Exports are expected to reach 750 million board feet, or about 100 million board feet below the 1955 level.

Between January and April 1956 the wholesale price index of lumber increased from 127.6 to 130.6 or about 3 percent above the previous all-time peak of 126.7 reached in March 1951. Since April, prices have dropped to 125.8 in September 1956.

Pulpwood

Total pulpwood consumption, including the equivalent pulpwood content of pulp and paper imports, is expected to amount to 45.5 million cords in 1956. This will be a new peak in pulpwood consumption and marks the continuation of a period of extremely rapid growth in the pulp and paper industry.

During the first half of 1956 domestic pulpwood production was 17 percent above the corresponding period in 1955 as a result of an exceptionally high level of demand for paper and board. For the year, domestic production is expected to amount to an estimated 35 million cords - 13 percent higher than production in 1955 and 106 percent higher than production in 1946.

Imports of pulpwood during 1956 are estimated at 1.8 million cords or about the same as in 1955. The equivalent of about 9 million cords net is expected to be imported in the form of wood pulp, paper and board.

Pulpwood prices have increased in 1956. In the Southeast, for example, the average price of rough pine pulpwood delivered to local shipping points increased from about $14.35 per cord in 1955 to $15.50 in September 1956. Increases were also noted for most pulpwood species in the Lake States and the Northeast.

Veneer Logs and Bolts

Consumption of hardwood veneer logs since 1951 has amounted to about 1 billion board feet per year, a level of consumption that is expected to be maintained during 1956. Consumption of softwood veneer logs, practically all of which

are processed on the West Coast, has increased from 1.2 billion board feet in 1951 to an estimated 2.6 billion board feet in 1956. Most of this increase is attributed to the expanding use of softwood plywood in construction.

Other Timber Products

Consumption of miscellaneous industrial timber products such as poles and piling, posts, mine timbers, and a variety of other minor timber products in 1952 amounted to about 700 million cubic feet or the equivalent of approximately 9 million cords. Since then little change has occurred in the level of consumption of these products.

Christmas Trees

Consumption of Christmas trees during 1956 is expected to total 39 million trees, including about 27 million trees produced from domestic forests and 12 million trees imported from Canada. Prices of standing Christmas trees vary considerably throughout the United States. In the North, however, producers have been receiving prices for plantation trees of about $2.00 for 6-foot trees, with good form and of select species.

Naval Stores

Rosin prices probably will stay close to present levels well into 1957. Turpentine prices are likely to increase before the new crop year begins next April 1. While little change is expected this year in domestic consumption of rosin and turpentine, the long term trend is toward rising domestic consumption. A 15-20 percent increase is anticipated this crop year in turpentine exports, but rosin exports should be about the same as last year. Domestic production of rosin and turpentine is expected to increase slightly this year. However, because of lower carry-in stocks on April 1, 1956, as compared with a year earlier, there should be little change in total domestic supplies of both these commodities. For the years ahead, supplies appear to be ample, particularly in the case of turpentine.

The favorable market situation continues the trend which started more than 3 years ago. Only 117 drums of rosin and no turpentine were placed in the 1956 price support loan program. Since November 1954, 22 percent of CCC rosin and 45 percent of CCC turpentine stocks have been sold and substantial additional quantities are likely to move out of CCC stocks before the end of the crop year.

The Demand and Price Outlook for Lumber

Lumber consumption near record levels

Lumber consumption in the United States in 1956 is estimated at 40.5 billion board feet. This is about 3 percent less than estimated consumption in 1955, about the same as consumption in 1954, and not far below the all-time peak of about 45 billion board feet reached in 1906 (chart 1).

Per capita consumption of lumber fell from 527 board feet in 1906 to about 180 board feet during the 1930's. This was caused largely by the substitution of other materials, including plywood and paperboard, for lumber. Since the early 1940's, lumber consumed per person has shown no decided trend and has fluctuated around a level of about 240 board feet. During this period, the substitution of other materials for lumber in certain uses has continued but this has been offset by increased demands in residential construction and other uses. Since 1906 the relative importance of lumber in the mix of all raw materials (excluding food and energy materials) consumed in the U.S. economy has declined although the use of all industrial wood products (fuelwood excluded) since 1939 has maintained its relative position in the raw materials mix.

Construction the major use of lumber

In 1952 about 73 percent of all lumber consumed was used in residential and other types of construction. In 1956 construction activity is at a record level with the seasonally adjusted annual rate estimated at $44.5 billion ($35.5 billion 1947-49 dollars) or 3 percent above construction activity in 1955 (chart 2).

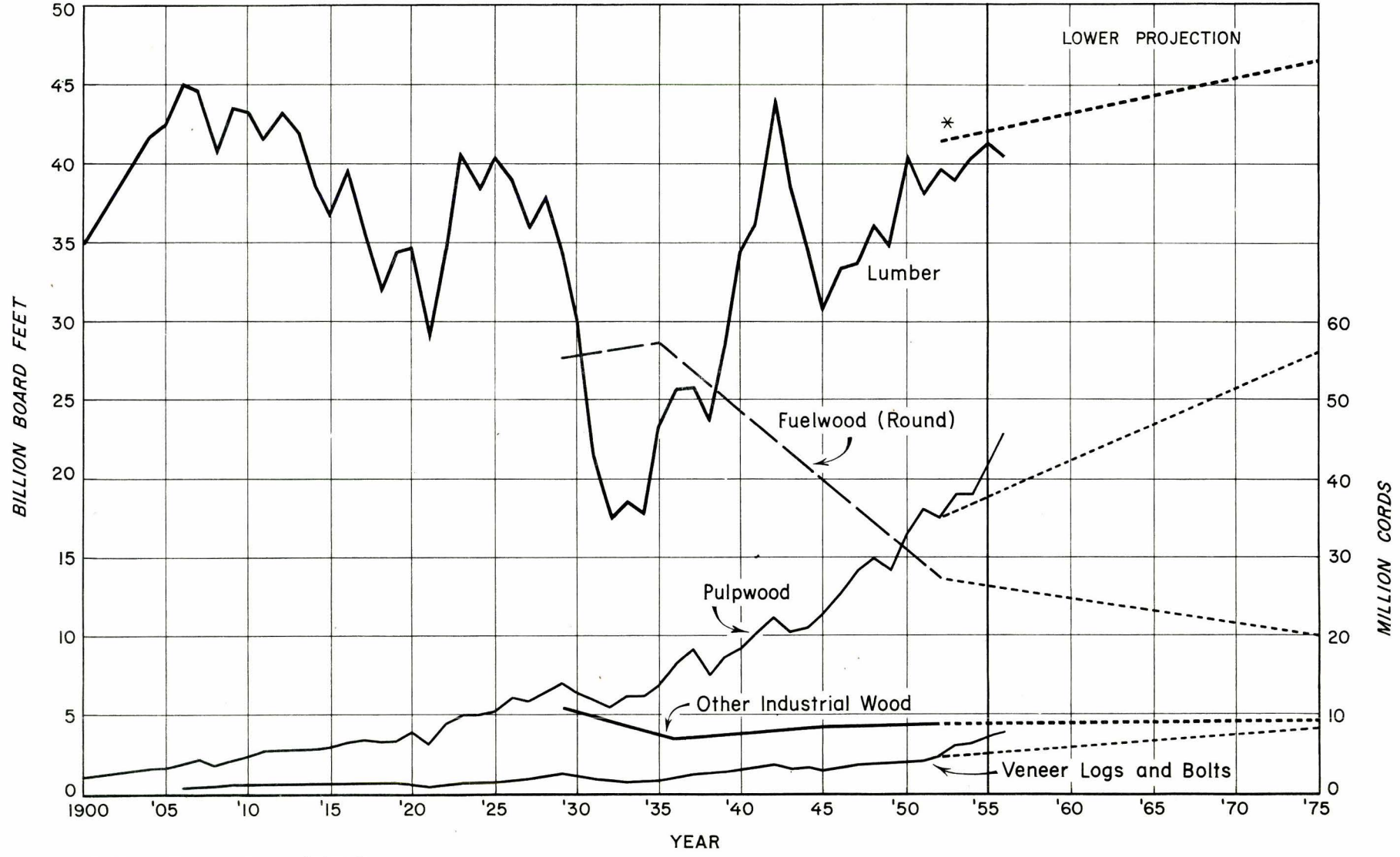
Housing is the most important single use of lumber. In 1952 an estimated 16.6 billion board feet, or 40 percent of all lumber consumed in the United States, was used in the construction and the maintenance and repair of residential buildings. Residential construction reached a peak in 1950 (chart 2) and a somewhat lower peak in 1955. In 1956 housing starts are estimated at 1.1 million units, compared with 1.3 million units in 1955 and an average of 1.2 million units for the period 1950-55.

During the next few years, residential construction may continue to be somewhat lower than the average for the period 1950-1955 as a result of reduced family formation, reflecting the low birthrates that prevailed in the depressed 1930's. Residential construction tends to be maintained, however, by the continuing movement of city populations to suburbs, by high birthrates which require larger houses, and by increases in disposable income which permit improvement in the general level of housing. Government policy to provide liberal credit and otherwise encourage housing construction is also likely to continue to be an important factor.

During 1952, lumber consumption on farms, in railroad construction and in mines amounted to about 5.8 billion board feet, or 14 percent of all lumber consumed. Since then it is estimated that lumber consumption for these uses has not changed significantly. Lumber consumption in other types of construction such as industrial, commercial, institutional, recreational, military and public

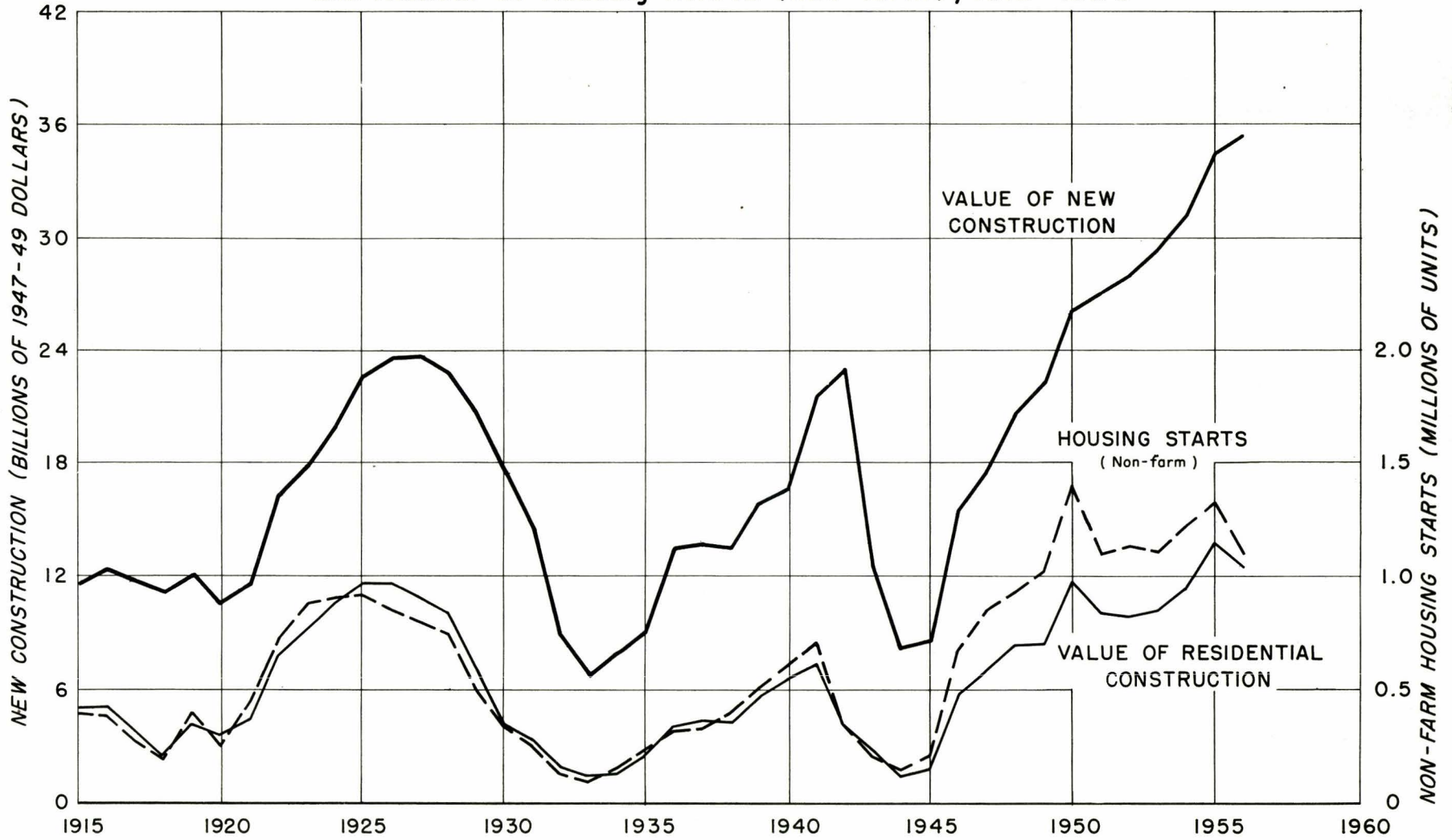
Chart 1

CONSUMPTION OF FOREST PRODUCTS IN THE UNITED STATES, 1900-1956
AND POTENTIAL DEMAND 1975



* Timber Resource Review Estimate

Chart 2
Value of All New Construction and Residential Construction in 1947-49 Prices and Number of Housing Starts (non-farm), 1915-1956



utilities amounted to an estimated 7.9 billion board feet in 1952. Since 1952, lumber consumption for such construction has increased in response to sharply increased construction activity (chart 2).

Shipment of agricultural and industrial commodities in 1952 required about 17 percent of all the lumber consumed, or 6.9 billion board feet. Since 1952, demands for shipping materials have increased significantly in response to higher levels of economic activity, but lumber has had fairly strong competition from container board and other shipping materials.

The third major end-use for lumber is in fabricated products such as furniture, millwork and a wide variety of other manufactured items. About 4.2 billion board feet, or 10 percent of all the lumber used in 1952, was consumed in the manufacture of these products. Since 1952, it is estimated that some increase has occurred in the use of lumber for manufactured products.

Domestic production supplies most lumber needs

Domestic lumber production accounts for about 95 percent of all the lumber consumed in the United States. In the period 1951 through 1955, for example, production averaged 37.7 billion board feet, compared with average imports of 2.9 and average exports of .8 billion board feet. Softwoods constitute about 80 percent of all lumber used in the United States. Softwood lumber from Canada has made up most of the lumber imports.

More than half the lumber now produced in the West[1/]

Lumber production in the West has increased from 3.5 billion board feet in 1900 to an estimated 20.6 billion board feet in 1956 (chart 3). The present western cut amounts to more than half of all the lumber produced in the United States. It includes about two-thirds of the softwood lumber.

The West is expected to continue to be the most important region of lumber production for some time because of its relatively great wealth of timber (chart 4). Altogether this region contains about 1,345 billion board feet of sawtimber, or two-thirds of the Nation's total supply. In terms of softwoods, which account for about 80 percent of the lumber used in the country, the West is in an even better position with 80 percent of the softwood volume. Most of this timber, moreover, is old-growth of relatively high quality.

At the present time the cut in the West is far in excess of growth (chart 5). This can be expected to continue until most of the old-growth timber is harvested and new second-growth forests have developed. As the backlog of old-growth timber is cut, it is inevitable that the relative importance of the West as a lumber producing region will decline. Commercial forest lands in the West make up only 24 percent of the Nation's timber growing area (chart 4).

1/ The West includes the eleven western States and South Dakota. The South includes the twelve most southern States including Virginia. The North includes the remaining 25 States.

Chart 3

Lumber and Pulpwood Production in the West
Selected Years, 1900-1956

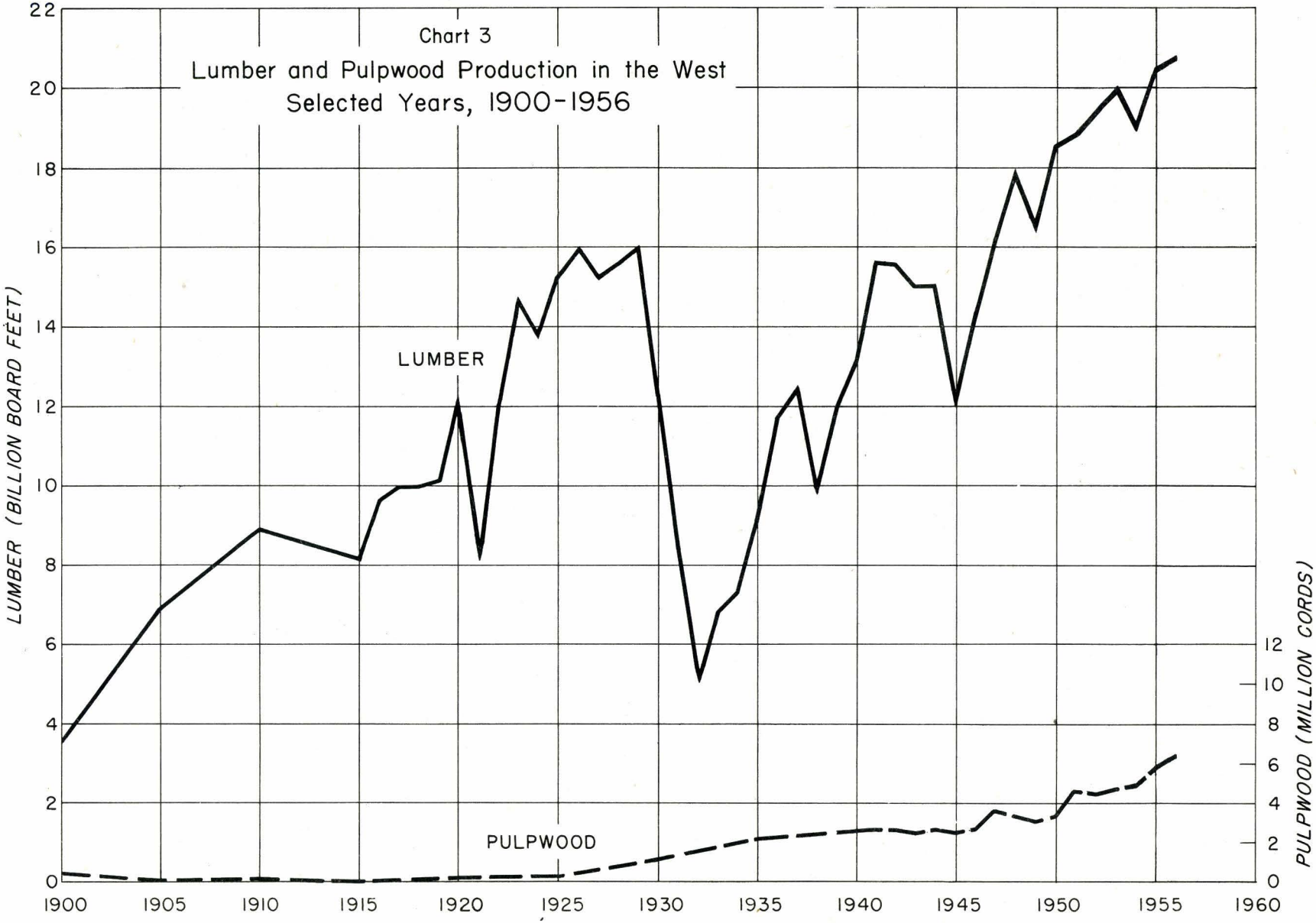


Chart 4

Distribution of Commercial Forest Land, Sawtimber Volume, Growing Stock Volume, and Sawtimber Cut by Region, 1952

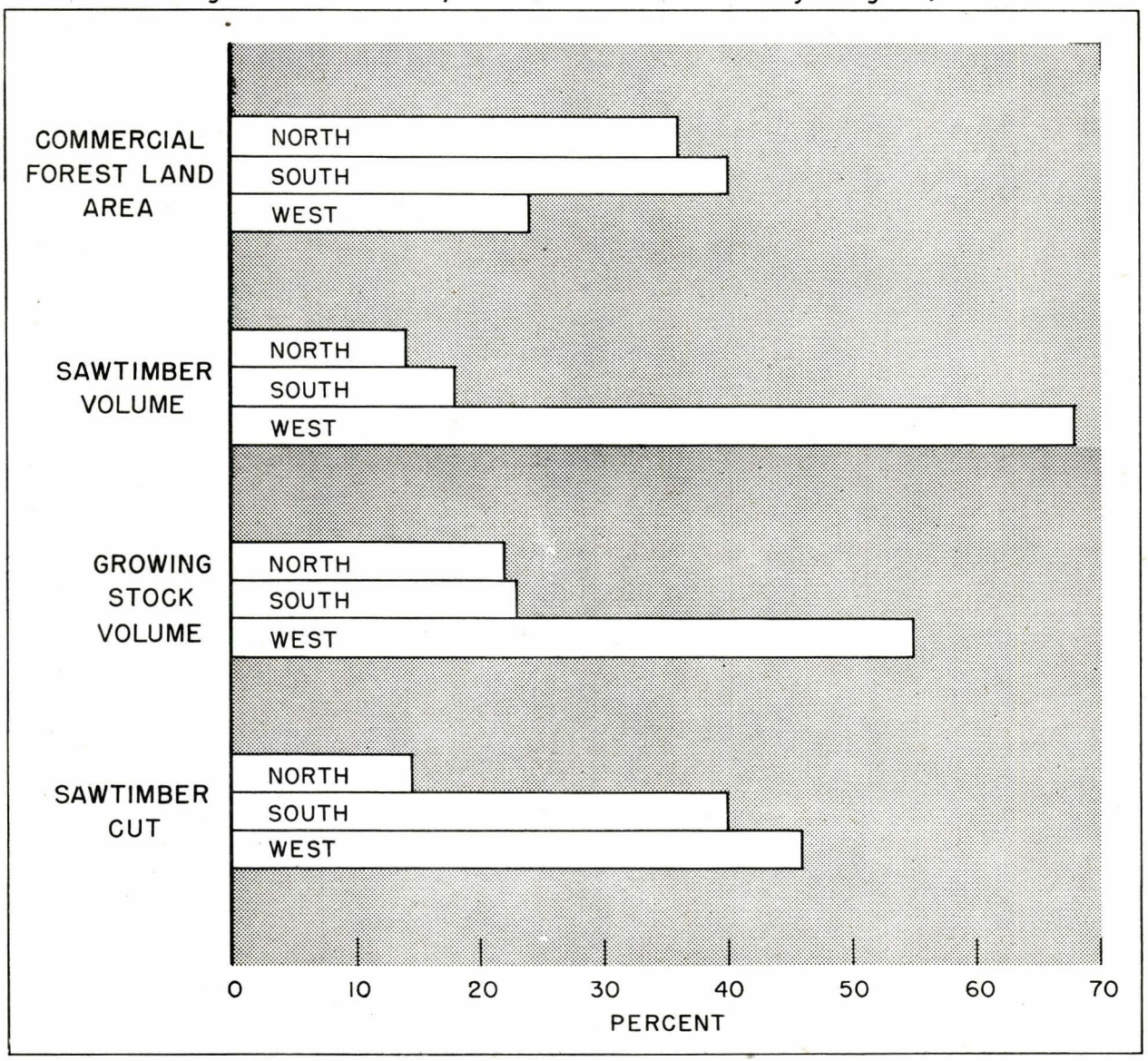
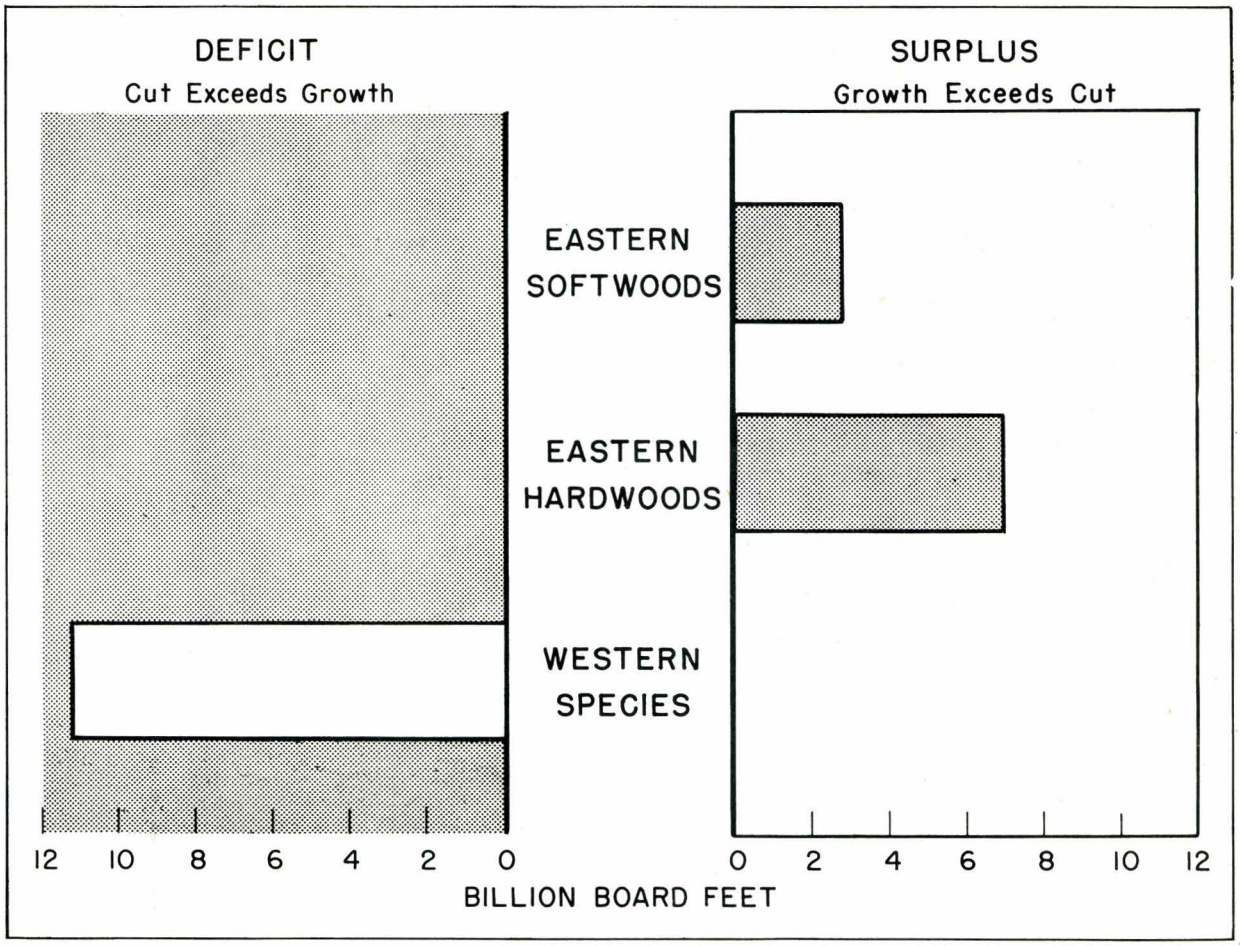


Chart 5

Sawtimber Growth - Cut Relationship in the United States 1952



The South still a large supplier of timber products

Lumber production in the South has declined from a peak of 20 billion board feet in 1910 to an estimated 12.4 billion board feet in 1956 (chart 6). Since 1940, however, practically no change has occurred in total lumber production in this region, although the softwood cut has dropped to 65 percent of the total southern lumber cut while the output of hardwood lumber has increased to 35 percent of the total. Since 1935, production of pulpwood also has increased spectacularly and is now only slightly behind the cut of lumber.

The South is potentially one of the most productive forest regions in the United States. It contains about 40 percent of the Nation's forest land, 23 percent of the growing stock, and 17 percent of the sawtimber (chart 4). Growth rates are high, logging conditions are relatively easy, year-round employment is possible and labor supplies are relatively abundant. Market location also is highly favorable and distances to the great industrial centers of the North and Midwest are relatively short. Current growth in the South exceeds cut, particularly for hardwoods, and through more intensive forestry growth can be materially increased.

As in the West, forestry efforts in the South will have to be intensified if the region is to continue as a major source of lumber and still meet the expanding work requirements of the pulp and paper industry. Improved management is particularly needed on farm and other small holdings which include nearly three-fourths of the forest land in the South.

Fifty years ago the North provided half of all the lumber produced in the United States (chart 7), but after the peak of 1905, lumber production declined sharply to less than 4 billion board feet in the 1930's. The estimate of 5 billion board feet of lumber production in the North in 1956 approximates the average of the past 15 years.

The North contains 22 percent of the Nation's growing stock and 13 percent of the sawtimber, mainly hardwoods (chart 4). Timber growth in 1952 exceeded cut but average timber quality is low and growth is far below potential yields.

Lumber prices reaches all-time peak in 1956

Between January and April 1956, the wholesale price index of lumber increased from 127.6 to 130.6 (chart 8). This was slightly above the previous all-time peak of 126.7 reached in March 1951. Between April and September 1956, lumber prices dropped to 125.8.

From 1926 to September 1956, wholesale lumber prices increased 279 percent, climbing from an index of 33.2 in 1926 to 125.8 (chart 8). Prices of all commodities, on the other hand, increased by only 77 percent during this period. In the past 6 years, however, the wholesale price indexes for both lumber and all commodities have been relatively stable.

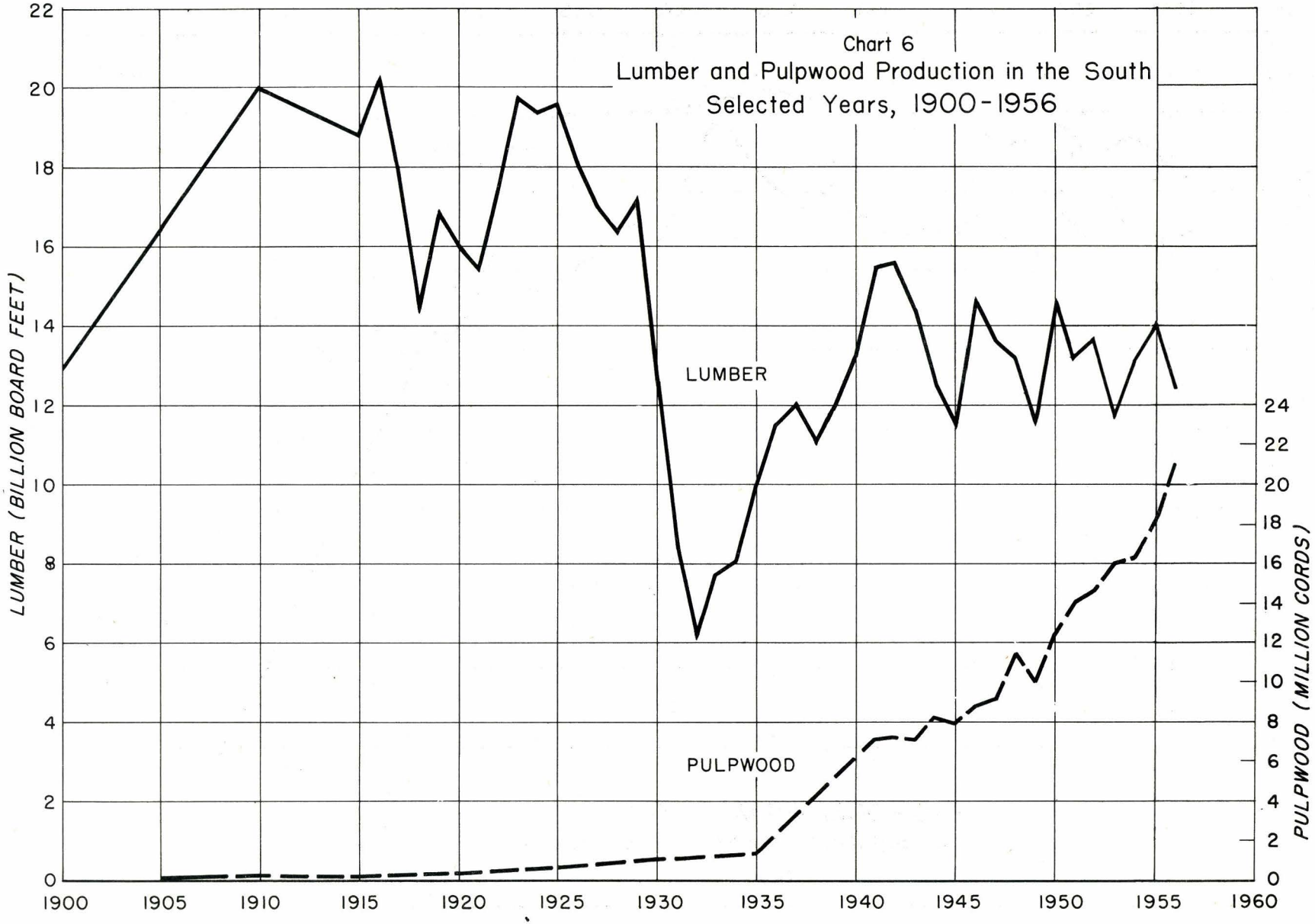


Chart 6
Lumber and Pulpwood Production in the South
Selected Years, 1900-1956
LUMBER (BILLION BOARD FEET)
PULPWOOD (MILLION CORDS)
LUMBER
PULPWOOD
0
2
4
6
8
10
12
14
16
18
20
22
24
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960

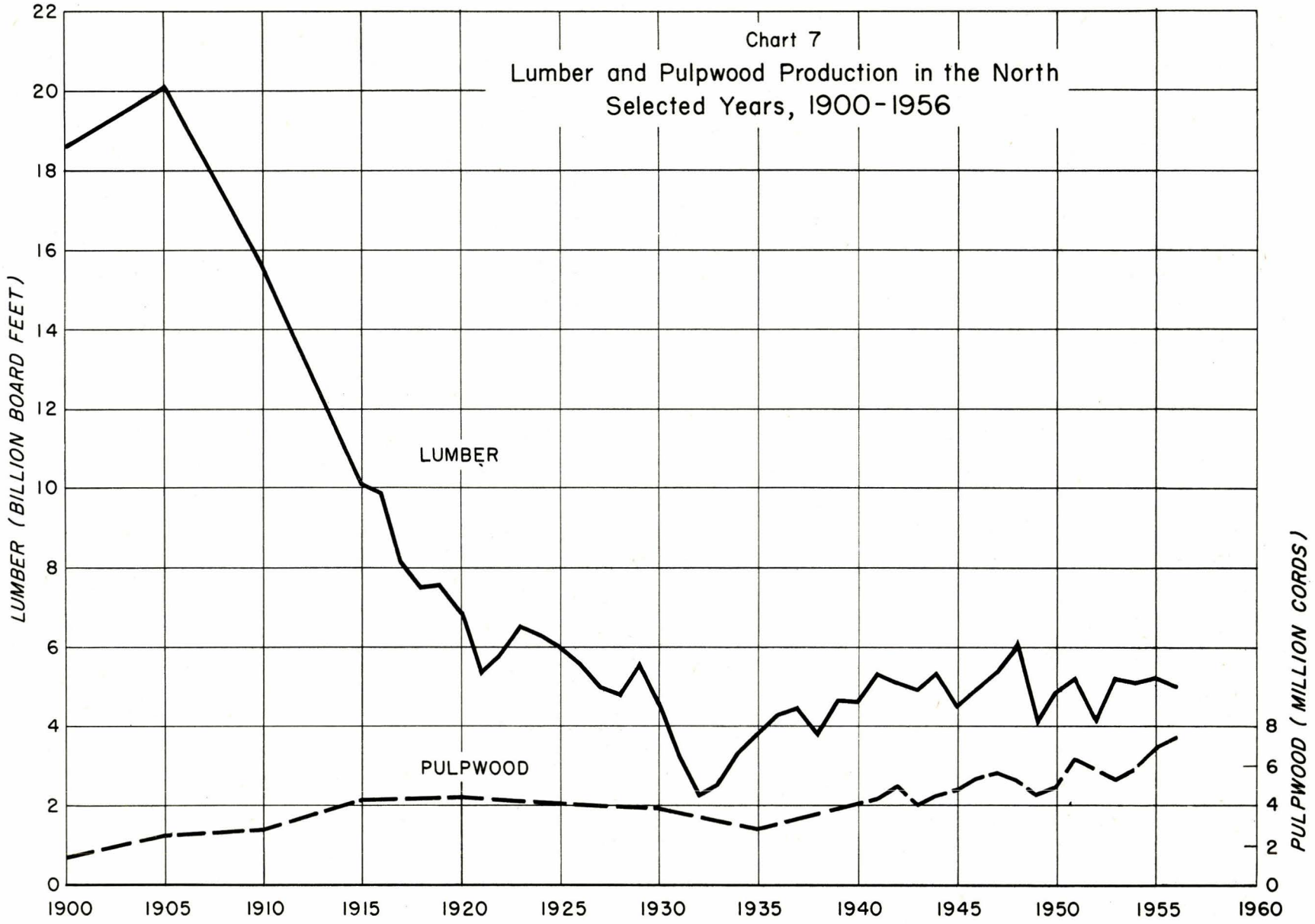
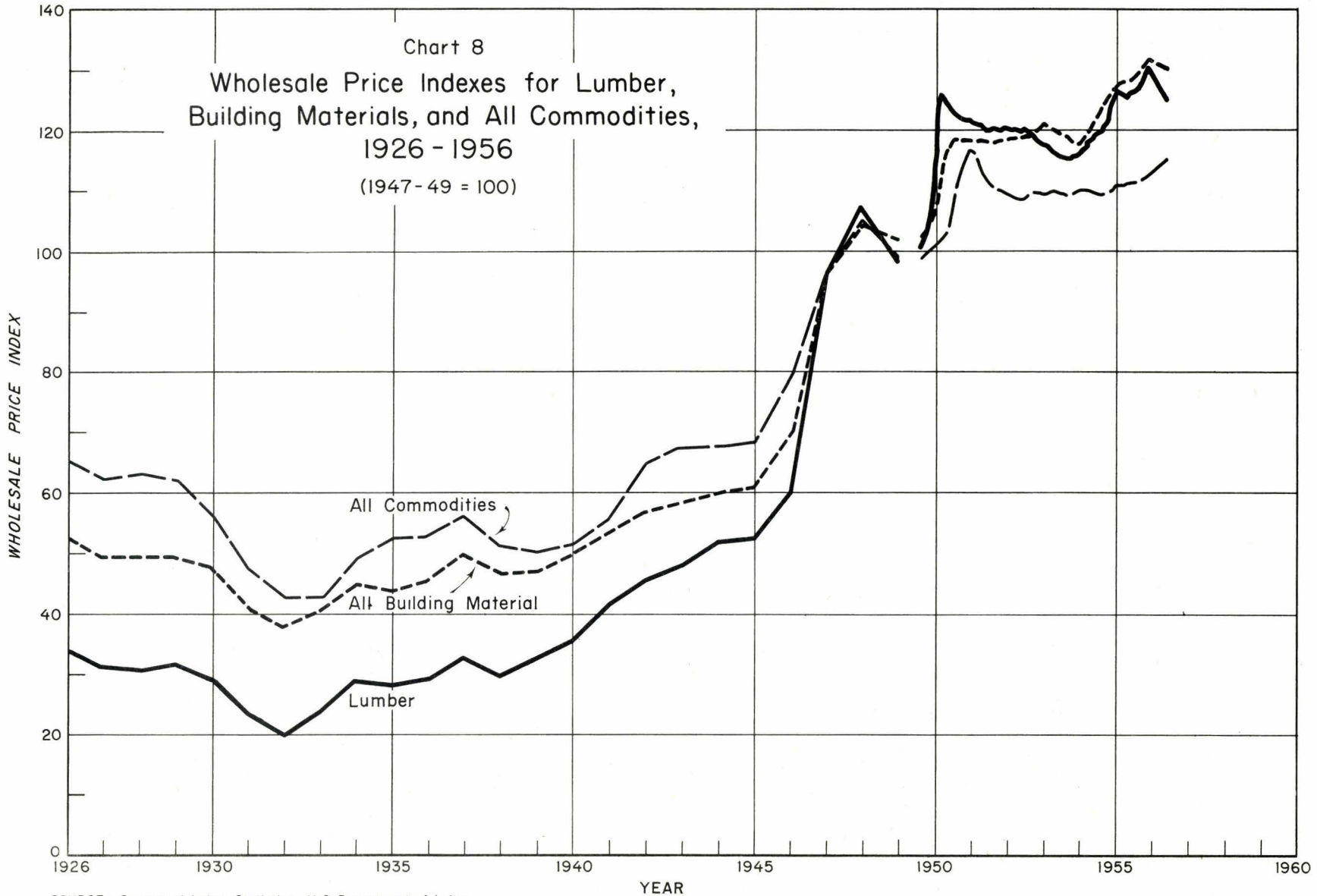


Chart 7
Lumber and Pulpwood Production in the North
Selected Years, 1900-1956
LUMBER (BILLION BOARD FEET)
PULPWOOD (MILLION CORDS)
LUMBER
PULPWOOD
22
20
18
16
14
12
10
8
6
4
2
0
8
6
4
2
0
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960

Chart 8

Wholesale Price Indexes for Lumber, Building Materials, and All Commodities, 1926 - 1956

(1947-49 = 100)



SOURCE: Bureau of Labor Statistics, U. S. Department of Labor

The rise in lumber prices that has occurred since 1926 has resulted from a number of factors. With the diminishing availability of timber of desirable market quality, for example, it has been necessary to utilize smaller and poorer quality trees, which require more man-hours and equipment time per unit of lumber produced. It has also been necessary to shift logging operations into more remote regions with difficult terrain and consequent increases in logging costs. Rising values for standing timber have also been reflected in higher lumber prices.

Stumpage prices show large increases

Stumpage prices, i.e., the price received for standing timber, are at or near an all-time high throughout the country. Southern pine stumpage in national forest timber sales, currently averages about $35.00 per thousand board feet, compared with about $5.00 in 1935. In the Douglas-fir region of western Oregon and Washington, national forest sales of Douglas-fir stumpage currently averages about $30.00, or 15 times the price of $2.00 received in 1935. Stumpage prices vary widely for given tracts of timber, however, depending upon tree species, timber quality, volume per acre, accessibility and logging conditions, and various other factors.

The Demand and Price Outlook for Pulpwood

Consumption rising rapidly

Total pulpwood consumption, including the equivalent pulpwood content of pulp and paper imports, is expected to amount to an estimated 45.5 million cords in 1956 (chart 1). This will be a new peak in pulpwood consumption and marks the continuation of a period of extremely rapid growth in the pulp and paper industry. New uses for pulp and paper products, as well as continuing growth of population and Gross National Product, has resulted in construction of numerous new mills and major expansions of most pulp and paper plants.

During the first half of 1956 pulpwood production was 17 percent above the corresponding period in 1955. Total production in 1956 is estimated at 35 million cords--13 percent above production in 1955, and 106 percent higher than production in 1946. Imports of pulpwood during 1956 are estimated at 1.8 million cords, or about the same as in 1955. Imports of wood pulp, paper and board, less exports, is expected to total the equivalent of about 9 million cords of pulpwood.

U. S. increasingly self-sufficient in pulpwood

Domestic forests are being called upon to supply the pulpwood for the rapid expansion in United States pulp and paper markets. In 1956, pulpwood production from domestic forests is estimated at 35 million cords, or 77 percent of the total of 45.5 million cords needed to supply United States pulp and paper demands. In 1930, on the other hand, only 46 percent of the pulpwood needed to supply pulp and paper demands was cut from domestic forests.

Softwoods preferred for pulpwood

Southern pine, western hemlock, Douglas-fir, spruce and true firs are most in demand for pulpwood and these species have long been the principal source of pulpwood used for pulp and paper manufacture in this country and in Canada. In 1956, it is estimated that softwoods will make up about 83 percent of the current pulpwood cut. In the South, softwoods will comprise about 87 percent of the total cut, in the North 58 percent, and in the West almost 100 percent of the total. Softwoods are preferred over hardwoods for many grades of paper and board, because of longer fiber length and greater strength for pulp and paper.

Consumption of hardwood pulpwood has been expanding, however, as a result of increased competition and prices for softwood timber and development of suitable pulping processes for hardwoods. This has been particularly true in the North where stands of preferred spruce and fir have not been adequate to meet expanding demands of the pulp industry and where large supplies of relatively low cost aspen and other hardwoods are available. Although the proportion of hardwood pulpwood to softwood pulpwood has not changed appreciably for many years, production has risen from about 0.8 million cords in 1920 to an estimated 6.0 million cords in 1956.

Pulpwood production concentrated in the South

Pulpwood production in the South has increased rapidly from about 1 million cords in 1930 to an estimated 20.9 million cords in 1956 (chart 6). This present cut of pulpwood is equivalent to about 75 percent of the volume of sawlogs produced in the region.

The rapid growth of the pulp and paper industry in the South is based upon a number of favorable factors. These include good location with respect to markets; reasonable security of future raw material supplies based upon rapid tree growth, local supplies of labor and year-long woods work, comparatively easy logging conditions, availability of water, chemicals and power, and excellent transportation facilities for both pulpwood and finished products.

Considerable competition consequently has developed between pulp mills and sawmills for the available supply of softwood timber in many parts of the South. To an increasing extent, the same sizes and species of timber are utilized for sawlogs and pulpwood. Yet further expansion of the southern pulp industry is to be expected because of such factors as strong bargaining power for available wood supplies, and ability to use small size and low grade material.

Pulpwood production in the West increased from about 1.2 million cords in 1930 to an estimated 6.4 million cords in 1956 (chart 3). The use of plant residues for pulping is especially important in this region. In 1952, for example, about one-third of the wood used in pulping consisted of plant residues from sawmills and veneer mills. Moreover, the proportion of residues used has been steadily increasing. The region still has large quantities of waste material suitable for pulp manufacture and undoubtedly further expansion will be based on the use of such residues.

Fifty years ago, the North supplied nearly all of the pulpwood produced in the United States, and as late as the early 1930's the Northeast and Lake States still supplied more than half of the Nation's cut. In contrast to the South and West, production has been increasing relatively slower (chart 7) due in part to increasing shortages of the preferred softwoods. In recent years, production of semi-chemical and other hardwood pulps has increased rapidly and further expansion based on the large hardwood resources of this section can be expected.

Pulpwood prices rise in 1956

Pulpwood prices in 1956 were moderately higher than in 1955. In the Southeast, for example, prices of rough pine pulpwood received by producers at local points of delivery increased from about $14.35 per cord in 1955 to $15.50 in September 1956. Comparable increases were noted for most pulpwood species in the Lake States and the Northeast.

Pulpwood prices show considerable variation between regions, depending upon species, availability of local timber supplies, and other factors. Thus in the Lake States, prices of rough pulpwood f.o.b. cars currently average about $24.25 per cord for spruce, $17.50 for pine and $12.75 for aspen and northern hardwoods. In the Northeast, prices f.o.b. car average about $20.00 per cord for spruce and fir and $15.00 for white pine. In the South, prices per rough cord f.o.b. car average about $15.50 for pine and $13.45 for hardwoods.

Since the 1930's, pulpwood prices have advanced rapidly. Prices for southern pine pulpwood, for example, increased from $3.60 per cord in 1938 to $15.50 as of September 1956, as shown in the following tabulation:2/

Year	Average price	Year	Average price
1938	$ 3.60	1947	$10.95
1939	3.90	1948	11.70
1940	4.15	1949	11.00
1941	4.60	1950	11.90
1942	6.00	1951	13.85
1943	7.25	1952	13.90
1944	8.20	1953	13.90
1945	8.45	1954	13.95
1946	10.10	1955	14.35
		Sept. 1, 1956	15.50

2/ Prices shown in this tabulation represent the weighted average of all rough pine pulpwood loaded on railroad cars, and trucked to pulp mills in the Southeast.

The Demand and Price Outlook for Veneer Logs and Bolts

Veneer log consumption rising rapidly

Consumption of veneer logs and bolts in the United States has risen from 1.5 billion board feet in 1946 to 3.6 billion board feet in 1956 - an increase of 140 percent (chart 9).

The volume of veneer logs consumed in 1956 was roughly equivalent to 9 percent of the lumber used and 21 percent of total pulpwood production. Most of this increase in veneer log use has been in consumption of softwood veneer logs which rose from .6 billion board feet in 1946 to an estimated 2.6 billion board feet in 1956. Consumption of hardwood veneer logs during this same period increased from about .8 billion board feet to about 1 billion board feet.

Almost all of the softwood veneer logs are produced in the West. Hardwood veneer logs are produced in both the South and the North. Limited quantities of veneer logs, chiefly specialty hardwoods, are also imported into the United States.

Demand and Price Outlook for Other Forest Products

Industrial timber products

Consumption of timber products such as poles and piling, posts, mine timbers and a variety of other minor products in 1952 amounted to about 700 million cubic feet or about 8 percent of the industrial wood (all products except fuelwood) consumed in the United States. Consumption of individual products has shown variable trends in recent years but it is estimated that there has been little change in total wood consumption for such products. In total, however, there has probably been no significant change in the amount of wood consumed.

Christmas trees

Consumption of Christmas trees during 1956 is expected to amount to about 39 million trees, including about 27 million trees produced from domestic forests and 12 million trees imported from Canada. In the North, for example, prices of Christmas trees from plantations have averaged about $2.00 per tree for 6-foot trees of good form and select species. Prices vary considerably, however, by species, form and locality.

The Long-term Outlook for Timber Products

The Forest Service has recently taken a look ahead at the future prospects for timber products in the light of expected trends in the growth of population, Gross National Product and other related factors.3/

It is estimated that the Nation's population, for example, will increase from about 157 million people in 1952 to 210 million in 1975, and to 275 million in the year 2000 (chart 10). Gross National Product, a more significant market

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3/ U. S. Department of Agriculture, Forest Service. Timber Resource Review, September 1955.

Chart 9

Consumption of Veneer Logs and Bolts in the United States
Selected Years, 1900-1956

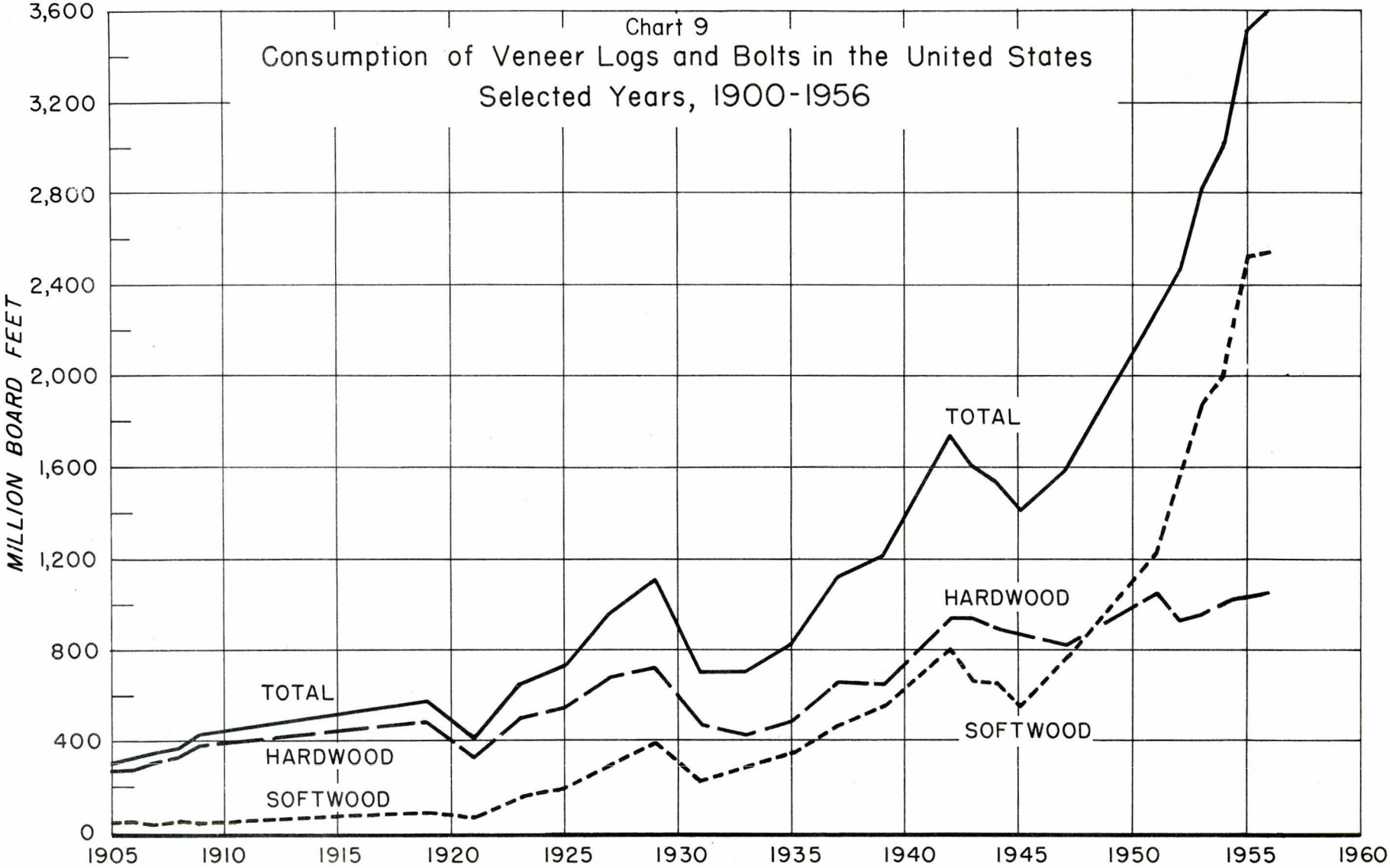
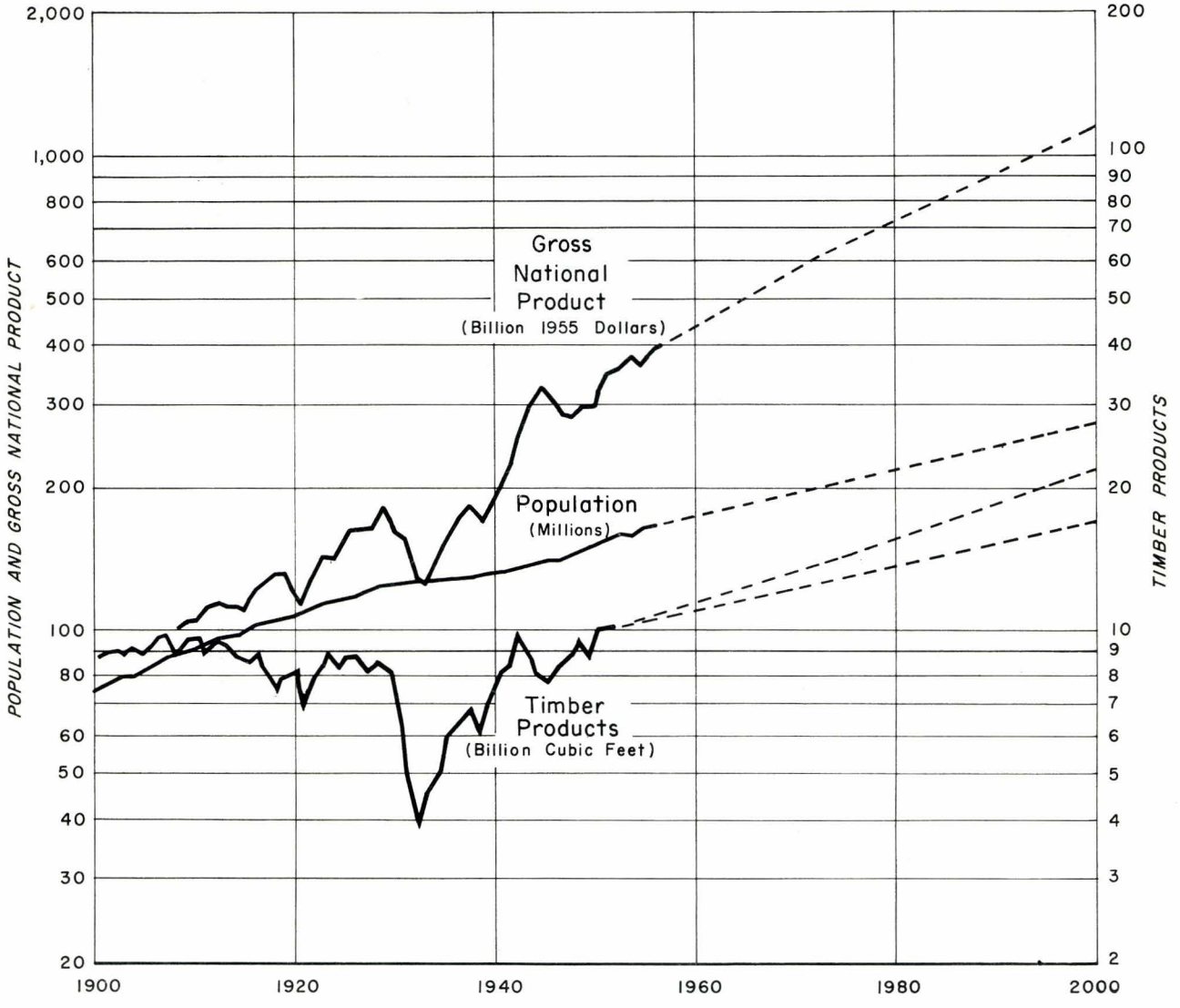


Chart 10

Trends in Population, Gross National Product, and Consumption of Timber Products with Projections to the Year 2000



indicator for industrial raw materials is expected to rise from a 1952 level of about $365 billion to $630 billion in 1975 and $1,2000 billion in 2000. Other estimates indicate that by 1975, population and Gross National Product may be considerably above these estimates. However, on the basis of the above estimates of population and Gross National Product and with consideration of other factors affecting the consumption of timber products and competing materials, the Forest Service has made two projections of potential demands for timber products (chart 10).

The lower projection of potential demand was based upon a product by product analysis which considered the effect of substitution trends as well as the growth of population and Gross National Product. This projection shows that by 1975, demand for industrial wood products may be 25 percent above 1952 and total demand including fuelwood may be about 17 percent greater than in 1952. The upper projection of demand, which assumes no change in the position of industrial wood in the mix of raw materials used in the United States, shows an increase of 40 percent by 1975, with total demand, including fuelwood, 29 percent greater than in 1952. With higher estimates of population and Gross National Product, potential timber demands would be higher.

The Timber Resource Review report further indicates that with such increased demands for timber, a tightening timber supply situation is in prospect. Assuming that progress in forest management will continue as indicated by recent trends - and this means substantial progress - timber supplies would be sufficient to meet demands under the lower projection in the years immediately ahead. Within a few decades, however, projected growth would not be sufficient to meet all timber demands particularly for the preferred softwood species such as southern pine and Douglas-fir and for quality timber. The upper projection of potential demand could not be supplied for long without dipping heavily into forest capital.

These projections of potential demand and prospective growth thus point to future supply problems and increased timber values, particularly for the preferred softwoods and high quality timber. This means problems of raw material supply for many forest industries and pressure for such adjustments as greater use of hardwood in lieu of softwoods. From the standpoint of forest landowners, this suggests better market opportunities for timber and a greater stimulus for forestry than in the past. From the standpoint of forest industry and the public, this appraisal of the future emphasizes the need for a major strengthening of forestry efforts in the United States.

The Demand and Price Outlook for Naval Stores

Domestic consumption rising. While relatively little change is expected in domestic consumption of rosin and turpentine in 1956, the long term outlook is toward increased consumption of these products.

Industrial use of turpentine declined precipitously in the 1920's and early 1930's when paint manufacturers turned from turpentine to cheaper competitive solvents. For many years since then and until 1955, the principal outlet for turpentine has been in small containers for paint thinning by individual painters and house owners. Meanwhile, industrial use of turpentine has been increasing and last year accounted for 57 percent of the total domestic disappearance--an all time high. An even greater proportion is expected to be consumed industrially this year and in years to come. Partially offsetting this expansion is a reduction in requirements for on-the-job thinning of oil base paints as a result of inroads made by water based paints.

As in the case of turpentine, the long time trend of rosin use is up, partly because of steadily expanding requirements for paper sizing. During the crop year ending March 31, 1956, 35 percent of all rosin consumed domestically went into paper sizing. In contrast, ten years ago, rosin use in paper sizing accounted for less than 23 percent of total domestic consumption. There has been a shift, likely to continue, from the direct marketing of rosin as such to the marketing of modified or specialty rosins.

Rosin exports about unchanged in 1956. Not much change is expected in rosin exports during the 1956 crop year. Barring major hostilities or prolonged interruption of shipping, increased exports from China and Mexico, along with liquidation of the British stockpile (accumulated during the Korean War) should largely offset reduced supplies from France, Portugal, Spain and Greece.

Turpentine exports to increase. Turpentine exports, likely to increase 15-20 percent because of the 20-25 percent reduction in Western European and Greek production, may be the highest since 1950.

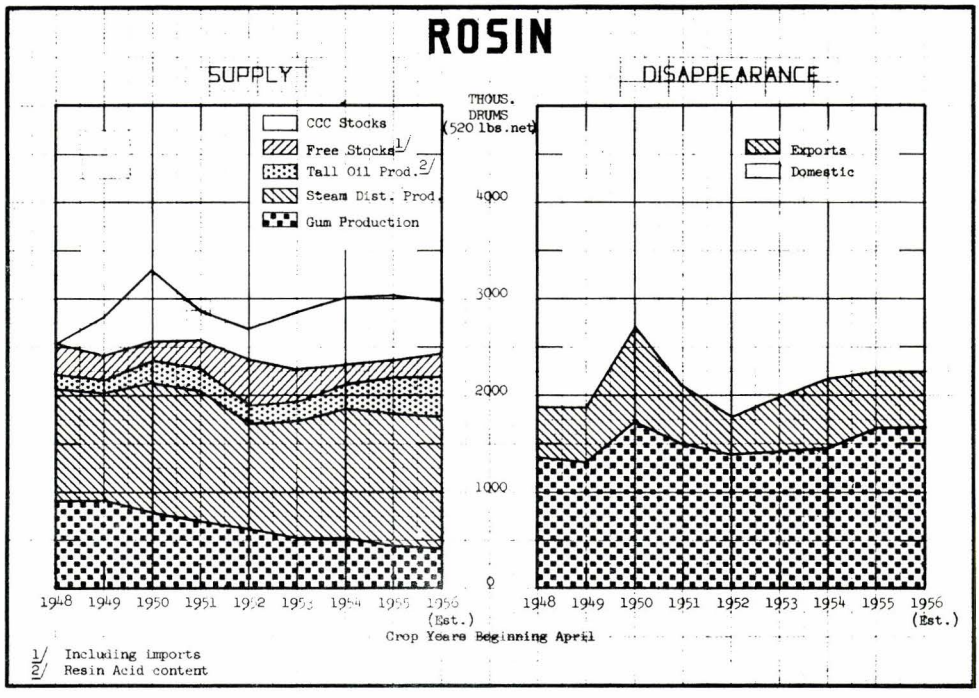
Foreign developments. Foreign production is likely to increase next year. However, this factor should be offset at least in part by substantially lower foreign stocks at the end of the current producing season. Consequently, the outlook is for little change, possibly slightly lower exports next year.

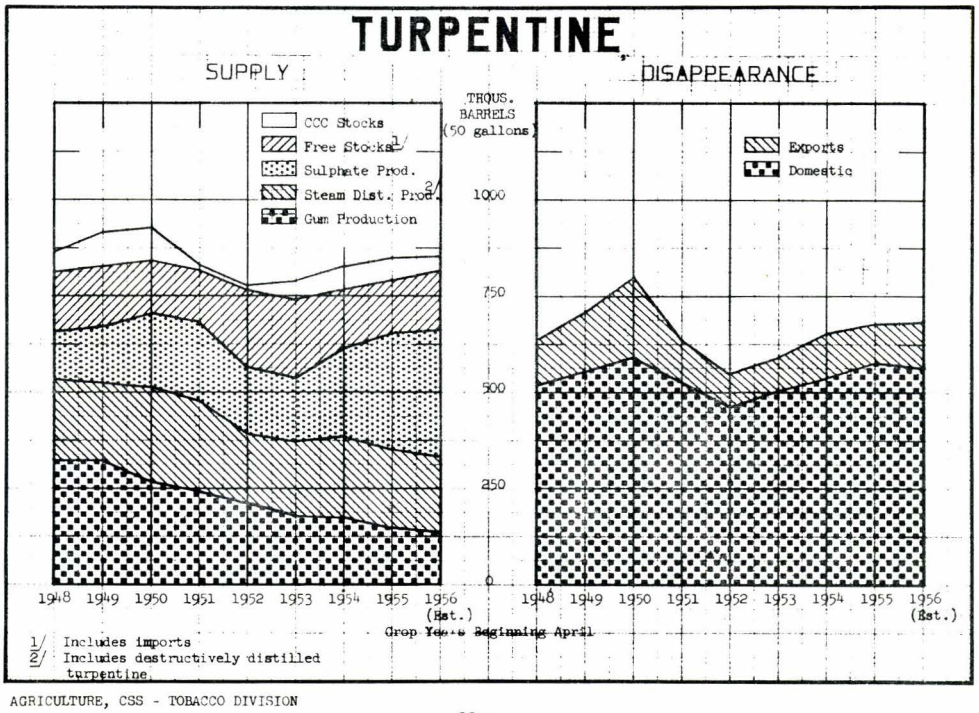
Among the recent interesting developments in the foreign naval stores situation have been the emergence of China as a significant supply factor in world naval stores trade and plans for the initiation next year, on a small scale, of steam distilled wood naval stores production in Mexico. Another factor which may favorably affect the foreign market

Chart 11

Supply and Disappearance - Rosin and Turpentine

Crop Years Beginning April 1948 through 1956





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for American naval stores is the probability that France has passed its post war peak as a supplier of gum naval stores. Owing to increasing competition for labor in the gum producing region and the delayed effects of the disastrous forest fires of 1949, French production hereafter may be substantially reduced as compared with the average for the 10 post World War II years.

The relative importance of the export outlet for U. S. rosin and turpentine has been declining since the early 1930's. However, since the end of World War II, exports appear to have stabilized at about 500 to 600 thousand drums[4] of rosin and 80 to 120 thousand barrels[5] of turpentine. Even if foreign output were to expand, the growing naval stores requirements of a world striving toward industrialization should tend, in the long run, to maintain U.S. exports at or above present levels.

Slight output rise expected in 1956. About 2,204,000 drums of rosin[6] and 664,000 barrels of turpentine are expected to be produced in the 1956 crop year. This amounts to $\frac{1}{2}$ percent and 1 percent increase for rosin and turpentine, respectively, over the previous year. An 11 percent increase in the production of tall oil resin acids[7] should more than offset a 5-6 percent decline in gum rosin production and a 1 percent decrease in the output of steam distilled rosin. A 7 percent increase in sulphate wood turpentine production is expected to overcome a fall in gum and steam distilled turpentine output of 6 and 2 percent, respectively. (See Chart 11)

Not much change in output likely in 1957. After four straight years of increased rosin production and three consecutive years of rising turpentine output, little or no increase is expected next year. Although output of tall oil rosin (including the recoverable resin acid in tall oil) and sulphate turpentine is likely to increase, this may be largely offset by reduced production of other types of rosin and turpentine.

Long term production outlook. The long term outlook is for increased production of both rosin and turpentine. By 1975, it is anticipated that sufficient sulphate pulp mill capacity will be available to produce about 900,000 drum equivalents of tall oil resin acids and 600,000 barrels of sulphate turpentine. How much of the crude tall oil will be used to make tall oil rosin rather than refined tall oil will depend on overall demand for rosin, the extent to which markets are developed to absorb the fatty acid content of the tall oil, and the competing volume of gum and steam distilled rosin output.[8] Any increase in sulphate turpentine and tall

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4/ 520 lbs. net each.

5/ 50 gallons each.

6/ Including the resin acid content of tall oil.

7/ Output of tall oil rosin as such is likely to approximate 225,000 drums, about twice the volume produced in 1955.

8/ It is important to note that as tall oil production increases, the accompanying increase in kraft paper output requires an average of 1 drum of rosin for paper sizing for every 4 drums of tall oil resin acids produced in the paper making process.

oil rosin output is likely to be offset at least in part by reduced production of the steam distilled wood naval stores industry which is working on a shrinking supply of first growth long leaf pine stumps. The present low level of gum naval stores production stems from competition of expanding industrial and forestry enterprises. However, the growth potential of the gum naval stores segment of the industry is great and it is probable that the achievements of lower production costs through application of the results of continuing research on increased crude pine gum yields and reduced labor requirements will reverse the downward trend in gum output.

Lower rosin stocks in prospect. Rosin stocks are likely to be lower at the beginning of the next season than at any time since April 1, 1951. It is estimated that on April 1, 1957 they will be about 6 percent less than the previous year, with gum stocks accounting for the decline. Although little change is likely in overall turpentine stocks, a reapportionment of stocks is likely through a 30 percent decline in gum turpentine carry-in next April 1 and a 20 percent increase in stocks of wood turpentine. If export demand materializes as expected, the bulk of CCC turpentine stocks and an appreciable part of CCC rosin stocks probably will be liquidated by next April 1.

Turpentine prices likely to increase. Turpentine prices are expected to rise before new gum crop becomes available next April 1. Prices for rosin probably will remain close to present levels through the remainder of 1956 and well into 1957. However, any prolonged interruption of shipping through the Suez Canal may curtail and increase the cost of rosin shipments from China and exert upward pressure on prices. Through October of this crop year, rosin and turpentine prices have averaged 1 and 2 percent, respectively, less than a year ago.

The present strong market situation continues the trend which began more than three years ago. Last year, no loans were made under the price support program and this year, under the 1956 program, only 117 drums of rosin have been pledged. During the past two years, CCC's rosin and turpentine stocks were reduced by 22 and 45 percent, respectively, to meet requirements in excess of commercially-held supplies. Before the end of the crop year, much of the 522,000 drums of rosin and 32,000 barrels of turpentine remaining in CCC stocks should move into consumption.